

## WHAT IS CLAIMED IS:

- 5 *Sub. B1* 1. A surveillance system comprising;  
 a sensor suite having a plurality of sensors each sensor having a sensor  
 output signal;  
 a field sensing unit locally located with and in communication with each  
 sensor to receive the sensor output signals;  
 the field sensing unit further comprising a sensor fusion module having a  
 CPU programmed to determine the status of each sensor based on its sensor output signal  
 and to derive a qualitative determination signal from the status determinations of the  
 10 sensors; and  
 the field sensing unit further comprising a transmitter for transmitting the  
 qualitative determination.
2. The surveillance system of claim 1 further wherein said sensor suite and  
 said field sensing unit are installed in a unitary structure.
- 15 3. A system for displaying status change indications, of a plurality of sensors  
 positioned at a remote location, said system including a command console for displaying  
 said indications, said system also including a field sensing unit at said remote location,  
 said field sensing unit including means for comparing present status indications for said  
 sensors with next prior status indications for said sensors for computing status change  
 20 indications, said field sensing unit including means for transmitting status change  
 indications to said command console.
4. A system as in Claim 1 wherein said field sensing unit includes means for  
 determining whether or not a said change in status indication institutes an alarm  
 condition.
- 25 5. A system as in Claim 2 wherein said field sensing unit includes  
 assessment means for evaluating said status change indications over time for determining  
 a condition statement for transmission.
6. A system as in Claim 1 including a plurality of remote locations each of  
 which includes a said plurality of sensors, each of said remote locations including a field  
 30 sensing unit, said command console including means for polling said plurality of said  
 field sensing units for initiating transmissions therefrom.

7. A security apparatus including a plurality of sensors responsive to the presence of airborne chemicals and/or biological agents, said apparatus including a field sensing unit for monitoring the status of said sensors, said unit including means for computing a change in status indication for each of said sensors under surveillance via  
5 sensor fusion, said field sensing unit including means for transmitting said change in status indications.

8. The security apparatus of Claim 7 in which the field sensing unit uses sensor fusion operations based on the change in status indicators of the sensors and computes a signal containing information that indicates the status of the environment  
10 under surveillance, and the transmitting means transmits the signal.

9. A field sensing unit for monitoring the status of a plurality of sensors, said unit being operative to compare present status indications with next prior status indications for computing change of status indications, said unit including means for transmitting change of status indications.

10. A system comprising a community of individual sensor suites, a sensor fusion device, and a command center remote from said suites and said fusion device, each of said sensor suites comprising a plurality of sensors each responsive to the presence of its specified sensing input for generating signals representative thereof, said sensor fusion device being operative to provide an interpretation of the signals from at least one of said  
20 sensor suites and for communicating said interpretation to said remote command center.